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ABSTRACT

Learning style preferences of a group of nursing students was analyzed to determine whether the development of self-instructional modular learning packages would be an educationally sound means for presenting didactic content to students. A total of 38 junior baccalaureate nursing students completed the Canfield Learning Styles Inventory. Results of the "mode" area of the inventory did not support modular self-instruction as a teaching methodology for this class. The class preferred the lecture method and did not want to read. The "content" area also did not support self-instruction. Preference was placed on working with people. This preference is met in the application area of the nursing curriculum, the clinical laboratory. Based on the findings, limited use of modular self-instruction was recommended. Further investigation of goal-setting behaviors in the class was also recommended, along with orientation to modular instruction for both faculty and students and release time for faculty to develop modules. It was also suggested that modular and lecture formats not be used at the same time, and that modules and faculty workload be carefully evaluated. (Author/SW)

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ANALYSIS OF LEARNING STYLES OF NURSING STUDENTS AT UNIVERSITY OF CENTRAL FLORIDA

CURRICULUM AND PROGRAM PLANNING

by

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ABSTRACT

TITLE: AN ANALYSIS OF LEARNING STYLES OF NURSING STUDENTS AT UNIVERSITY OF CENTRAL FLORIDA

AUTHOR: Margaret J. McCabe, M.S.N.

Demand on faculty time is particularly acute in schools of nursing due to the nature of the clinical laboratory. One possible means to reduce the contact hour load of faculty is to direct student self-instruction rather than using classroom lecture as the primary teaching method. The purpose of this study was to analyze learning style preferences of one group of nursing students to determine if the development of self-instructional modular learning packages would be an educationally sound means for presenting didactic content to students in that school.

Approximately seventy-five junior baccalaureate nursing students were asked to complete the Canfield Learning Styles Inventory. Forty-six students participated. Eight answer sheets were eliminated or incorrect procedure resulting in thirty-eight participants.

Results of the "Mode" area of the Inventory did not support modular self-instruction as a teaching methodology for this class. The class wanted lecture and did not want to read. The "Content" area, likewise, did not support self-instruction. The preference in this area was given to work-

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ing with people. This preference is met in the application area of nursing curriculum, the clinical laboratory.

There were data within the "Conditions" area of the Inventory to support an introduction on limited basis rather than total use of modular self-instruction to the curriculum and this recommendation was made. Other recommendations included further investigation of goal setting behaviors in the class, thorough orientation to modularized instruction for both faculty and students, release time for faculty to develop modules, that modular and lecture formats not be used at the same time, and that modules and faculty work load be carefully evaluated. It was also recommended that this study be replicated at a later date with a class experienced in modular self-instruction to assess for changes in learning style preferences.

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INTRODUCTION

Demand on faculty time is particularly acute in schools of nursing due to the nature of the clinical laboratory. Clinical courses, a bulk of the curricula, necessitate a large proportion of laboratory hours to classroom hours. Accrediting agencies require that direct supervision be given in these clinical laboratory sessions. The result is a high contact hour load for nursing faculty as well as high Full Time Equivalents (FTE's).

The financial crisis in higher education has created an urgent need to search for ways to provide quality education for nursing students with fewer faculty contact hours. A possible means to accomplish this is use of modular, self-directed learning for didactic content. The purpose of this study was to analyze learning style preferences of one group of nursing students in one school of nursing to determine if the development of self-instructional modular learning packages would be an educationally sound means for presenting didactic content to students in that school.

STATEMENT OF THE PROBLEM

Faculty in schools of nursing are subject to high contact hour and full Time Equivalent (FTE) loads, the result

of low student-to-faculty ratio for clinical laboratory supervision. Additionally, team teaching is usually practiced. The smaller the class size, the greater is the classroom teaching load shared by each teacher on the team.

One possible means to reduce the contact hour load is to direct student self-instruction rather than using classroom lecture as the primary teaching method. Additional benefits of self-instruction are for learning problem-solving skills, clear and consistent presentation of material, reduced repetition (Knippers:1982), individualized pacing, promotion of responsibility for learning (Lea:1975), and preparation for life-long learning (Huckabay:1981).

Learning styles are a cluster of personality and mental characteristics that influence how a student perceives, remembers, thinks, and solves problems (Bennett:1979). The purpose of this study was to analyze style preferences of one group of nursing students to determine if the development of self-instructional modular learning packages would be an educationally sound means for presenting didactic content to students in that school.

BACKGROUND AND SIGNIFICANCE

The traditional teaching-learning environment found in many school of nursing as well as in many other disciplines, i.e. the lecture format for presenting didactic content, may be a source of frustration as well as less learning

than potentially possible in the class population. Complicating the situation further is the fact that many students and faculty alike lack experience with techniques other than lecture-textbook and are therefore uncomfortable with or unaware of other teaching/learning environments.

The need to study and understand educational practices has been emphasized by Bloom (1978):

> "Neither further opportunity for education nor increased financial support for education will do much to improve the education of each of our students. The answer does not lie in additional funds, new fads, or major and sweeping changes in the organization of our educational system. . . The solution lies in our views about students and their learning. These views have grown out of our practices and they will not be changed until we alter these practices. When the changed practices succeed in promoting more effective learning, both teachers and students will change their views."

Students learn in different ways, a fact known for some time. Some prefer listening to lecture, others to read in the library, have specific assignments, or to define their own problem(s) and search for answers (Rezler:1981). "As a result of our hereditary equipment, our particular past life experience, and the demands of our present environment, most people develop learning styles that emphasize some learning abilities over others" (Kolb:1974), documented also by Kagan:1963, 1964). "The teacher who wants to capture the interest of many, different students needs to find out about their learning preferences and, whenever possible, try to

match these preferences with suitable learning conditions" (Rezler:1981).

Learning Styles

Learning styles represents a cluster of personality and mental characteristics that influence how a student perceives, remembers, thinks, and solves problems (Bennett:1979). Rezler (1981) defined "learning style" as the manner in which an individual perceives and processes information in learning situations, as opposed to "learning preference", which is the choice of one learning situation or condition over another. Learning style is described by Dunn, Dunn, and Price (1977) as a phenomenon that varies among individuals, is identifiable, and requires complementary instructional methodology and/or teaching styles. It can be defined simply as a student's preferred way of learning. They identify eighteen different elements from basic stimuli that affect a person's ability to absorb and retain information (sound, light, hunger, for instance.) A student's learning style is an aggregate of his own opinion about how he learns. Davidman (1981) says learning style describes a student in terms of those educational conditions under which he is most likely to learn.

There are consistent aspects of learning styles: (1) learning takes place as a relatively stable cognitive pattern, and is (2) related to the interaction of the learner and his environment and experience. This definition implies

that learning styles are an important consideration in either successful group participation or structured learning experiences because they must be suitable for adaptation to new and unfamiliar situations (Cohen:1969).

Learning style inventories, research instruments for assessing learning styles, have been developed by Canfield (1974), Dunn, Dunn, and Price (1977), Friedman and Stritter (1977), Hill and Nunney (1974), Kolb (1976), and Reichman and Grasha (1974). Of these, only those by Kolb and by Friedman and Stritter have been used with health professionals. Additionally, Rezler and French (1975) utilized the Learning Preference Inventory (LPI) developed in 1974 to assess the learning preferences of students in six allied health professions. The majority of allied health and pharmacy students preferred teacher-structured and concrete learning tasks and situations (Rezler:1981). Bennett (1974) used Kolb's inventory with practicing dietitians, medical technologists, occupational and physical therapists, and nurses. One third could not be placed within a particular learner type, and he found the instrument unsatisfactory for assessing the learning styles of health professionals. This study is the only one that refers to nurses.

Learning style inventory can be quite diagnostic (Tamir:1980). Hardy (1981) goes so far as to suggest assessing applicants for learning style before assigning to a program. An asset to style mapping is that it is amoral--

there is not a good nor a bad style. It is possible, however, to match a particular style with a given task. It is possible to match learners with learning situations (McIntire:1980), a task that should be done (Smith:1977).

Mapping should also apply to continuing education (Rezler:1981), a somewhat unique learning situation. All groups in Rezler's study showed preference for teacher-structured learning, and the most prevalent method was lecture. Teachers need to realize that listening to lectures does not necessarily produce learning, a fact borne out by learning theory and research. Teachers also tend to forget that practitioners become responsible for self-education and are frequently unprepared. While learning preferences should be considered, students need to be exposed to new ways of learning. It is difficult to like something with which one has no experience (Rezler:1981).

Understanding <u>how</u> a person learns, and helping people understand how to learn is a major requisite for a successful educational program (Knowles:1973). Much has been written about learning styles as a vital factor in promoting learning at all age and educational levels. Many educators feel that learning styles are far more significant than learning disabilities, and emphasis on the latter may have been in vain (Kitson:1982). The diversity of learning styles appears to be so much greater than has generally been recognized that many slow learners may be "slow" only because they have never

had a chance to learn in their preferred way (Reinert:1976). The use of information that builds on student strengths holds promise as a contributor to student success. Research has shown that self-fulfilling prophesy is an important variable to success (Henshel:1975).

The benefits of identifying learning styles and personalizing instruction accordingly are well documented. Students who are taught in a manner consistent with their personal learning styles are more successful than those whose learning styles are not taken into account in the educational process (Carbo:1980, Douglass:1979, Dunn and Dunn:1978, Stott:1978, Trautman:1979). An instructional framework in which different learning styles are recognized as being equally positive can result in a positive response from learners who have traditionally fallen victim to the lecture-textbook approach (Keyser:1980-81).

Many individuals do not succeed because learning style is not in harmony with teaching style (Price:1981). Cavanaugh (1981) found that learning style approach improved not only academic achievement, but attitudes toward school as well. Systematic identification of learning styles and differences in learning styles can enable counseling, program planning, learning environments, and administrative strategies to be more finely tuned for student benefit (Cawley:1967). Openness, informality, and individualization

can contribute to superior achievement as measured by standardized testing (Dunn and Dunn:1977).

Self-Directed Learning

Increased enrollments in schools of nursing has caused faculty to face the problem of accomodating those numbers of students who have diverse abilities and speeds of learning. Independent study and programmed instruction are two possible solutions to individualizing instruction. An additional benefit is preparation of graduates in a variety of educational experiences to prepare them for life long learning (Huckabay:1981).

Nurses are self-directed learners to a greater extent than has generally been recognized (Clark:1976, Cooper:1982, Moran:1977). They spend considerable time in self-directed learning. Some are more self-directing than others, and it is probable that with guidance, many more could become more self-directing (Clark:1976, Moran:1977).

Self-instruction can be useful for solving learning problems. It can ensure clear and consistent presentation of content and reduce repetitious teaching. Instruction can be individualized, particularly in relation to past knowledge (Knippers:1982). Self-instructional units can enhance learning. Students learn more material at a faster pace, learning is more enjoyable, and students are responsible for their own learning (Lea:1975). Self-instructional units have been proven effective as learning tools by Balogun (1976),

Fernald and DuNann (1975), Guimei (1977), Hart (1966), Hurst (19974), and Pearman and Suleiman (1966)to name a few.

DEFINITION OF TERMS

For the purpose of this study, the following definitions were used:

Learning style - Those affective variables identified by Canfield (1980) that seem to effect learning, and which contribute to satisfactory and effective adjustment to the teaching-learning situation. The four major areas within which measures are made are: 1. Conditions - The interpersonal interactions associated with the teaching-learning areas of affiliation, eminence, structure, and achievement; 2. Content - The comparative levels of interest in the fields of numbers, qualitativeness or verbalization, working with the inanimate, and working with people; 3. Mode - The use of one sensory system in preference to another, measured and listening, reading, iconics (visual), and direct inference; 4. Expectation - The level of performance anticipated by the learner.

LIMITATIONS

There were several limitations to this study. Only one class of students was tested and it is possible that elements within the study population could have produced results that are different from other classes within the school. The inventory was administered during a very heavy class schedule in a summer session, and fatigue may have affected the sincerity with which students completed it. The findings apply only to this group of students and may not necessarily have generalized value.

BASIC ASSUMPTIONS

For the purposes of this study, it was assumed that this class was similar to other classes within the school, so findings can be applied to curriculum. It was assumed that administration of the inventory to two separate groups that comprise the class will produce uniform compliance to completing it between the groups. The inventory is non-threatening, so it was assumed that participants completed it honestly. Differences in age, sex, and educational level were accounted for in the preparation of the analysis procedure of the inventory, so it was assumed that these factors would have no further effect.

PROCEDURES FOR COLLECTING DATA

Approximately seventy-five junior nursing students were asked to complete the Learning Styles Inventory (Canfield:1980) (Appendix A). The Inventory is a thirty-item questionnaire which requires the participant to rank four options in the order in which they describe their preferences or feelings. The Inventory is untimed and can be completed in about one minute per item. Item responses are recorded on a separate answer sheet.

The Inventory provides scores in four major categories: conditions, content, mode, and expectation. There are a total of twenty scores in these four areas. Additionally, the Inventory provides an expectancy score, in

effect, a conversion of all of the expectancy information into a single score.

Data derived from a sample of 3690 community college students showed scale reliabilities ranging from 0.59 to 0.92 as reported in the first edition of the manual for the Inventory. At the time of publication of the second edition of the manual (1980), no data were available on test-retest reliability of the Inventory.

The nursing students who were asked to participate were members of two classes of juniors, both taking the same course. One of the groups was admitted in August and had had two semesters of the upper division nursing major. It numbered fifty-six. The other group of approximately eighteen was admitted in January and had had one semester of the upper division nursing major. The two groups were mixed for the half semester summer course, with half the total group taking the course in the first session and the other half in the second session. Data were collected during these two summer sessions.

Permission to administer the Inventory was requested and received from the program director. Students of both summer classes were asked to complete the questionnaire as a group after a classroom session. Printed directions on the questionnaire were reviewed with the participants with emphasis on the fact that there is no right or wrong answer and

that data collected is descriptive as opposed to evaluative. Participation was voluntary.

Both groups were aware that research data would be collected on the respective dates. The first testing session, following a class session, was preceeded by students being asked to consult a variety of lists placed around the room and to sign-up for assignments before completing the Inventory. There was high attrition among the group, with only thirteen remaining to participate in the study. There was total participation among the second group. A total of forty-six participated in the study. Incomplete or incorrect completion necessitated elimination of eight of the answer sheets with a net result of thirty-eight participants.

PROCEDURES FOR TREATING DATA

Answer sheets, separate from the Inventory, were hand scored and raw scores converted to percentile scores utilizing tables published in the manual for the Inventory (Canfield:1980). Since significant differences in scores have been found between males and females, and among persons of different ages and school grade levels, these scores were profiled in relation to their appropriate sex and grade level groups utilizing the tested norms tables. This profiling shows how the individuals score as compared with those of similar sex and age level. Percentile levels were then converted to key scores to represent varying levels of pref-

erence. Percentiles of 90 and above received a key score of 5 and represent a very strong preference, those between 75 and 89 received a key score of 4 representing a strong preference, those from 26 to 74 a score of 3 and in a possibly adaptive zone, scores from the 11th through the 24th percentiles received a score of 2 representing a low preference, and scores at or below the 10th percentile showed a very low preference and a score of 1. Tables of these scores were constructed, and the results were examined for trends in the group of participants. Analysis of individuals was not a part of the research design.

RESULTS

Seventy-five junior students from a baccalaureate nursing program were asked to complete the Learning Styles Inventory by Canfield (1974). Forty-six students participated. Eight answer sheets were eliminated due to incomplete or incorrect procedures resulting in thirty-eight participants.

Answer sheets were hand scored and raw scores were converted to percentile scores utilizing tested norms tables differentiating sex and also age and grade levels. Percentile levels were then converted to key scores to represent varying levels of preference. Percentiles of 90 and above received a key score of 5 and represent a very strong preference. Scores between 75 and 89 received a key score of 4 repre-

senting a strong preference, those from 26 to 74 a score of 3 and in a possibly adaptive zone, scores from the 11th through the 24th percentiles received a score of 2 representing a low preference, and scores at or below the 10th percentile received a score of 1 showing a very low preference. Key scores of 5 and 4 indicating preference and of 2 and 1 indicating non-preference are presented in Table 1.

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

The scores are reported in four major areas of importance in examining learners' preferences for learning. Each area and the scores within are discussed. The key scores of the class as a whole is examined utilizing Canfield's (1980) descriptors.

I. CONDITIONS - The scores in this category reflect concerns for the dynamics of the situation in which learning occurs.

Peer Affiliation - High preferences in this scale reflect the individual's persistent selection, as a most important aspect of training, the development and maintenance of warm, friendly, interpersonal relations with individuals in his same situation or group. The comparisons made indicate that this condition for growth is more important than a logically of carefully developed study plan, more important than the opportunity to establish one's own objectives and goals, and more important than competition with others.

Table 1

Key Scores Indicating Preference or Non-Preference On The Learning Styles Inventory

	Scales	Key Scores			
		5	4	2	1
I.	CONDITIONS				
	Peer-Affiliation	1	5	10	4
	Organization-Structure	10	8	2	2
	Goal Setting-Achievement	4	6	8	6
	Competition-Eminence	4	5	10	2
	Instructor-Affiliation	4	2	3	8
	Detail-Structure	5	14	4	3
	Independence-Achievement	4	2	6	6
	Authority-Eminence	7	3	3	4
II.	CONTENT				
	Numeric	3	4	3	6
	Qualitative	2	5	5	7
	Inanimate	3	3	8	2
	People	5	11	8	0
III.	MODE				
	Listening	7	6	8	1
	Reading	1	5	12	3
	Iconics	5	9	7	7
	Direct Experience	3	6	4	3
IV.	EXPECTATION				
	The level of performance anticipated				
	A. An outstanding or superior level	24	5	0	0
	B. An above average or good level	2	6	4	0
	C. An average or unsatisfactory level	0	1	6	21
	D. A below average or unsatisfactory level	0	0	1	29

This class showed low preference in this area, with fourteen students scoring 1 or 2 and only six scoring 4 or 5. For this group, then, such activities as small group discussions among students, student team projects, cooperative study or project work, class projects, trips, and so forth are NOT likely to be most acceptable. It appears that mutually supportive and friendly relationships are not a priority in this group.

Organization-Structure - High preferences on this scale indicate a desire for information about the sequence of events in a development process and the importance of knowing why things are occurring in the order or manner utilized. Strong preferences in this field indicate that this is more important for an effective learning situation than warm relationships with other students, the opportunity to establish one's own goals, and the opportunity to compete with others.

This class showed a very high preference in this area, with eighteen scores of 4 or 5 and only four of 1 or 2. This group is likely to desire logical and systematic coverage of the material and a clear and understandable path for development. In the formal training environment, students indicating a strong preference for organization are likely to appreciate and work effectively with topical outlines, course outlines, chapter outlines, lecture note outlines and similar materials that present the logical developmental pattern of the experience. Well organized presentations without diver-

sions into unrelated topics are likely to be well received. These individuals are likely to want a careful and full explanation on how experiences are related, on the specific relationships between an assignment and a development or training objective, on a carefully ordered sequence of developmental experiences, on knowing how one developmental experience relates to. builds upon, or augments other experiences.

Goal Setting-Achievement - Strong preferences in this area reflect that the option of identifying and pursuing goals of immediate and specific interest to the individual is of the most importance. Within the Inventory, these options will have been selected consistently as being more important to the individual than those representing good student inter-personal relationships, a clear and logical organization of the learning experience, and a strong authority relationship between the instructor and the students.

This study group showed a stonger non-preference in this area, with 14 (36.8%) scores of 1 or 2 and only 10 (26.3%) scores of 4 or 5. A greater number of this class, then, do NOT opt to establish goals and objectives appropriate for themselves, nor for getting objective and frequent feedback on their progress. In the formal classroom environment, this class as a whole is not likely to seek opportunities to establish its own objectives or goals in its growth

or development. The class seems to prefer that goals be set by faculty.

Competition-Eminence - High preferences on this scale indicate that the individual has consistently indicated that some basis for comparing performance with others is important to effective learning. Such comparison needs represent a type of "outer directedness" in which the individual makes judgments about or assesses his performance on the basis of how it compares with others. In obtaining such a high preference in this area, the person had to indicate that competition and comparison with others was comparatively more important than warm and friendly relations with other students, more important than logical and orderly coverage of material, and more important than the opportunity to set one's own goals.

This class showed a stronger non-preference in this area, with twelve showing scores of 1 and 2 as opposed to nine who indicated a high preference with scores of 4 or 5. In the classroom situation, the typical situation in which the teacher asks different students questions, asking persons to volunteer if they know the answer is NOT likely to appeal to most of this group. Similarly, the posting of grades or test scores, the awarding of points for performance, the division into teams for competitive award activities, and so forth, are not likely to be appealing activities. References to the performance or achievement of others, the establish-

ment of interpersonal comparisons, the development of some kind of "typical others" base for the individual to use in comparison is not indicated for the majority of this group.

Instructor-Affiliation - High preferences on this scale indicate that the individual has consistently indicated a preference for situations in which a friendly, warm personal relationship is established and maintained between the instructor and the learners.

This class showed a much stronger non-preference in this area with eleven showing scores of 1 or 2 and only six showing preference scores of 4 or 5. This class as a whole is not likely to demonstrate an upward concern with the instructor. The class is prone to appreciate formality in address and association, and investigative-tutorial relationships. The instructor will be most effective in an evaluative or judging manner. There is not indication that small informal sessions will be helpful.

Detail-Structure - High preferences on this scale indicate that the individual has consistently expressed a preference or need for knowing the precise expectations for the individuals in that situation. This concern has been selected as more important than warm, friendly relations with the instructor, the opportunity to work independently, or the need for or desire for control of the learning situation by knowledgeable and capable instructors.

The study group showed a strong preference in this area. Nineteen had key scores of 4 or 5 and only seven had low preference scores of 1 or 2. These preferences indicate that the individual is particularly desirous of specific information about what is to be accomplished, how it is to be done, when it is to be done, and how it well be evaluated. In the classroom, these individuals are likely to desire written information about assignments, clear descriptions about events that are likely to happen, specific detail on the length, form, and general content of examinations, and specifics on how and when evaluations are to made. The strong need for detail can be confused with dependence or ignorance, but may merely reflect an individual's concern with not wasting time or energies doing improper, incorrect, or useless things.

Independence-Achievement - High preferences in this area indicate that the individual has consistently selected responses that indicate the importance of working independently and doing things on one's own. These responses were selected in preference to responses involving warm interpersonal relationships with the instructor, detailed information about the learning activity and relationship, and having an authority-controlled learning situation. They have selected item responses which provide them with considerable personal freedom in the establishment of the ways and/or means they will utilize to accomplish their goal.

The study group showed a non-preference in this area. There were twelve non-preference scores of 1 and 2 as opposed to six preference scores of 4 or 5. This group is less likely to adjust to independent study, particularly in situations where the student can select from several alternatives. This is an expression of lack of confidence in the individual's ability to identify and utilize the process and information that will be most useful for him. Independent assignments, out-of-class work, and non-group activities are likely to be unacceptable. In the clinical situation, these individuals may not absorb considerable coincidental information.

Authority-Eminence - Strong preferences on this scale, in comparison to the preferences indicated on the other scales in the "conditions" section, indicate that the person is particularly concerned with a well-controlled formal learning environment and the exercise of authority both in controlling the environment and in providing the answers or ideas in the class. Nearly all of the items contain an element of direction and control of the students by the instructor. In providing a high preference on this scale, the individual had to compare supportive relations with the instructor, detailed information about what was required, when it was due, and so forth, and the opportunity to study on one's own and get the material on one's own time.

Over half of the class was neutral on this scale, but of the remainder, more showed preference than showed non-preference. Ten or 26.3 percent indicated preference. Seven or 18.4 percent indicated non-preference. In the classroom, the student indicating preference for authority is likely to prefer lectures by recognized authorities, answers by and from the instructor rather than the other students, clear-cut positions of controlling the events and activities of the classroom, and difficult tasks directed in a no-nonsense way. In the clinical situation, the high authority individual will respect the instructor for having the answers he is supposed to have, for sharing that information, for giving tough assignments and monitoring progress objectively, for being fair in providing everyone with the same general requirements, and for exercising the prerogatives of the instructor's position.

II. CONTENT - Students tend to perform best when engaged in subject matter of greatest interest. Four measures were included in the Inventory to give the instructor an advance suggestion about the topical areas in the student's experience which are most likely to be attractive, and where particular efforts to encourage or excite the student might be helpful.

Numeric - Strong preferences in this area indicate that the individual tends to prefer studies and learning activities that involve computations, numbers, and mathemati-

cal manipulations. This interest is compared to preferences for studies involving words or language, working with or designing things, or in interacting with people.

The study population was largely neutral in this area. Seven students scored preferences scores of 4 or 5. Slightly more, nine, scored non-preferences of 1 or 2. Forty-two percent of the class scored in the middle, adaptive zone. In the classroom environment, persons with strong preferences for studies or activities involving numbers would prefer classes, courses, or study units involving mathematics or some form of logical system analysis or computation. Persons with very low preferences might signal a need to carefully motivate the student in such courses, or to provide tutorial help, or to assure early performance success. Generally, males have stronger preferences for numeric activities than females, a fact documented by Educational Testing Service (1981). Schools of nursing can well document student problems with calculation of drug dosages although the role that being predominantly female plays is unclear (DelBuono:1972, Dembart:1982, Dexter:1980, Ptaszynski:1981, Timpke:1981). It is perhaps not surprising that this study group should show low preference on the numeric scale.

Qualitative - High preference scores in this area reflect a preference for dealing with words (qualitative symbols). Activities which involve the language of conversation is of great interest and reflects itself in writing,

talking, editing, and so forth. High preferences for these kinds of activities represent a selection over activities involving computing arithmetic or mathematically, working with objects in repair, design, or operation, and in dealing with people in a social interactive relationships.

This study group showed non-preference in this area also. There were twelve non-preference scores and seven preference scores. In the formal classroom situation, the individuals showing non-preference are likely to prefer conciseness, and not prefer the preparation of critiques or reviews of positions, nor discussions in which differing experiences and/or view can be developed.

Inanimate - Strong preferences in this area indicate that the individual has consistently ranked items involving the repair, design, or operation of equipment over the other variables in this section. That is, the individual indicates a preference for working with things as opposed to people or numbers or language.

This study group showed non-preference on this scale as well. There were ten scores of 1 and 2 and six of 4 and 5. In the classroom, this class is not likely to be absorbed with actual pieces of equipment, working models, simulators and so forth, and will not tend to get involved with the design and maintenance activities associated with equipment. It is likely to be a challenge for the educator to stimulate interest in equipment in the classroom. Conversely, however,

persons who do not prefer inanimate objects are likely to be people-oriented.

People - A comparatively high peak on this scale indicates that the individual prefers activities that involve other people. This choice is made in comparison to working with numbers, reading or writing, and building or repairing things. In most instances, given a choice of activities one of which involved doing something for or with others, the individual selected the people contact activity over the other three. Activities selected are those associated with working around or with people, not necessarily in working with them in a friendly and mutually supportive way. Many items, for example, involve some controlling or interpreting function in working with others, and is a reflection of an interest in knowing and showing them rather than in being friendly and supportive with them.

Twice as many participants showed preference on this scale as showed non-preference (sixteen and eight respectively). In the classroom situation for this group, the "people" side of the job is likely to receive considerably more emphasis than the "task" side in terms of study and developmental attention. Topics involving the human relations or human resource management are likely to be of greatest interest and the most quickly accomplished. This does not necessarily indicate ability or skill in working with people, so clinical laboratory learning for nursing students,

the application of classroom learning, could still prove to be difficult for students showing preference on this scale. In some instances, high "People" scores coupled with generally low "Affiliation" scores (both peer and instructor) have indicated some difficulty in maintaining open and warm relationships with others despite a desire to do so. There are three participants who scored high in "People" and low in both "Peer-Affiliation" and "Instructor-Affiliation".

III. MODE - Some persons learn more efficiently through one of their sensory systems than another.

Listening - High preference scores in this area, in relation to the other scales in the "Mode" section, indicate that the individual has consistently preferred the auditory or listening sensory channel as the one through which learning is preferred. Listening, as a mode for learning, has been preferred over Reading, Iconics, and Direct Experience.

More of the study group showed preference for listening (thirteen with scores of 4 or 5) than showed non-preference (nine with scores of 1 or 2.) In the classroom situation, this class will tend to want to hear things explained or presented, as opposed to reading about them, seeing representations of them, or handling them or working with them directly. High "Listening" scores coupled with strong preferences for "Authority" are descriptive of individual satisfaction with the lecture format of instruction, a quality demonstrated by four of the study group.

Utilizing audio tapes for self study with the individual high in Independence would also be reasonable. High listening scores suggest that personal contact time between the clinical instructor and the individual is likely to be of great importance to the person's development.

Reading - High preference scores on this scale indicate that the individual prefers to accomplish learning through study of printed materials, books, magazines, pamphlets, articles, and so forth. This way of learning is preferred to hearing things, in viewing things, or in dealing with the material in a direct and personal way.

This class was quite dramatic in it's non-preference for reading, with fifteen non-preference scores to six showing preference. This class will not tend to want to have assignments utilizing conventional textbook or library work procedures.

Iconics - High scores on this scale indicate a preference for learning activities which involve some graphic or pictorial representation of the topics or things being studied. Iconics, in this inventory, includes all variety of non-word media such as videotapes, movies, charts, graphs, displays, slides, and so forth. Persons indicating strong preferences for iconics are expressing a need to see concepts in forms where interrelationships and visual expressions other than language are utilized. Very high scores indicate that the individual feels these types of materials are more

important than speeches, books, and actual contacts with the material directly.

The class was neutral on this scale, with fourteen individuals scoring each in preference and in non-preference. Of additional note is the fact the the fewest (ten) scored three or in the adaptive zone. It was the most strongly divided scale in the entire inventory. In the formal classroom situation, individuals expressing strong preferences for these kinds of materials are likely to adjust well to visuals of nearly all varieties. For persons interested in working alone, such self-study techniques as carrel-based audio-visual programs are likely to be acceptable and interesting. The lack of visual representations can be quite frustrating to persons having high iconic preferences, particularly in cases where most of the material is presented in lecture or conversation.

Direct Experience - Persons having strong preferences for this mode of learning have expressed a desire for learning situations in which they can work with or actually contact the materials, topics, or situations being studied. This mode of learning has been preferred in comparison to the other modes of listening, reading, and iconics. Direct experience can be interpreted to mean some form of actual contact with the subject matter, rather than dealing with some representation of the topics in language or iconic form.

Nine participants showed preference and seven non-preference on this scale, leaving twenty-two or nearly 58 percent scoring in the adaptive zone. In the formal classroom, individuals scoring high on this scale are most likely to enjoy real life contact with the subject. This could entail laboratory or field work, clinical experience, actual research with the subject matter, or the operation of equipment or the use of simulations. Clinically, this individual is likely to see the on-the-job experience as the fundamental and major portion of the developmental process. The joy and satisfaction associated with the "doing" may make it difficult for the individual to keep up with readings, or for him to gain full value from classroom presentations or speeches. It is curious that students of a practicing, hands-on profession such as this study group should score so neutrally on this scale.

IV. EXPECTATION - The nature of expectations held by the individual has been demonstrated to be a significant variable in personality, self-concept, and achievement (Sperry:1972). There is good reason to assume that it does influence learning in a significant way. A major section of the inventory is devoted to the collection of data from which an expectancy score is developed. This score contrasts the relative prediction of success or failure for the individual learner and provides significant leads as to those individuals most like-

ly to accept failure as what they expected, or to seek failure to confirm their self concepts.

High points on the (A) scale indicate that the person anticipates doing excellent or superior work in the learning situation. High points on the (B) scale indicate that the person expects to perform at an above average but not necessarily superior level. High points on the (C) scale indicate that the person is anticipating about average level performance. High scale extensions on the (D) dimension are quite unusual, but represent a prediction of doing poorly or failing.

On the (A) scale, this group had twenty-four scores of 5 and another five with scores of 4. Thus, 76.3 percent of this class expects to do excellent or superior work. The remaining nine students all scored 3, in the adaptive zone, with none scoring 1 or 2. On the (B) scale, two students scored 5 and six scored 4; thus eight expected to perform at an above average but not necessarily superior level. Four students scored 2 indicating that they did not expect to perform at an average level. On the (C) scale, only one student scored on the positive side with a 4, and twenty-seven scored 1 or 2, indicating that this class as a whole does not expect to be "average." The results are quite dramatic on the (D) scale, with 78.9 percent of the class (thirty students) indicating that they do not expect to fail. The remaining eight were in the adaptive zone, and there were

no scores of 4 or 5. This class sees itself as being a very successful one.

The expectancy score has the effect of converting all of the expectancy information into a single score. The higher the point on the scale, the stronger the individual's prediction of success. This scale, particularly, becomes most meaningful when the raw scores have been converted into a percentile form and to key scores. This information is presented in Tables 2 and 3. Twenty-eight students had key scores of 4 or 5, reinforcing the success attitude of the class. There were no key scores of 1 or 2.

Table 2

Expectation Scores, Percentiles, And Key Scores

Student	Expectation Score	Percentile	Key Score	Student	Expectation Score	Percentile	Key Score
1	35	46	3	20	15	88	4
2	12	94	5	21	16	88	4
3	18	81	4	22	12	94	5
4	26	65	3	23	12	94	5
5	6	98	5	24	14	88	4
6	24	73	3	25	22	73	3
7	10	94	5	26	12	94	5
8	6	98	5	27	23	73	3
9	8	98	5	28	36	46	3
10	6	98	5	29	14	88	4
11	10	94	5	30	10	94	5
12	28	65	3	31	20	81	4
13	8	98	5	32	18	81	4
14	15	88	4	33	17	88	4
15	28	65	3	34	37	46	3
16	16	88	4	35	31	56	3
17	12	94	5	36	13	94	5
18	12	94	5	37	8	98	5
19	17	88	4	38	12	94	5

Table 3

Summary of Key Scores
For Expectation

Key Scores	Number of Key Scores
5	17
4	11
2	0
1	0

5 = Very strong preference
4 = Strong preference
3 = Possibly adaptive zone, not considered in analysis
2 = Low preference
1 = Very low preference

The purpose of this study was to determine if modular, self-instruction is a viable option as a teaching methodology in this school. The "Mode" area of the Inventory certainly indicates that it is not. The study class, as do the groups in Rezler's (1981) study, wants lecture, and it does not want to read. The "Content" area does not give much support, either. However, the preference given to working with people is well met in the application area of the curriculum, the clinical laboratory.

Learning theory and research have borne out that listening to lectures does not necessarily produce learning. Also to consider is the fact that nursing practitioners are responsible for self-education and are frequently unprepared. The need for experience in self-instruction is well documented in the literature. It is, however, difficult to like something with which one has no experience (Rezler:1981). There are data within the "Conditions" area of the Inventory to support self-instructional modular learning. In "Peer Affiliation," the class indicated that it does not need friendly group support; thus, self-study should be acceptable. The group showed strong preference for "Organization-Structure." This could be very conducive for modular self-instruction, for the format could well, in fact probably would, provide most or all learning requirements in writing. Peer input is not needed for modular instruction although it could be beneficial. Modules tend to be very organized.

In the "Goal Setting-Achievement" area, the class was reluctant to set its own goals and needed faculty to do this for it. This could easily be established within modules. For those students who like to set some objectives of their own, suggestions for enrichment could be part of the modules but not required nor tested.

The class indicated that it did not particularly want close relationships with faculty ("Instructor-Affiliation"). One of the reasons for suggesting the modular format was to reduce faculty contact hours. The amount of decrease would depend on how the modular system was designed, a faculty decision. It is worthy of note, also, that contact hours required for clinical laboratory should provide human enrichment for the self-study and faculty contact would not be absent.

There was high preference for "Detail-Structure." Modular format is much more likely to provide specific directions than lecture. It is particularly strong in this area. Evaluative procedures could be specified in the modules.

On the negative side, in "Conditions," the class indicated that it does not want freedom for independent assignments. Since lack of confidence in the student's ability to identify and utilize the process and information that will be useful to him (Canfield:1980), selection of a modular format by a faculty should include methods of boosting stu-

dent confidence. For instance, units early in the curriculum could be quite specific, with options appearing only after students are quite familiar with the process. The "Authority-Eminence" area of the Inventory is fairly neutral but tends toward the negative side, again saying that the class likes lecture.

It is perhaps not surprising that a class of nursing students who are accustomed to the lecture format should react to reading as this one did. Many of the nursing textbooks currently being published are in excess of 1600 pages, some over 2000, and weigh eight to ten pounds. They are indeed formidable. Additionally, there is not just one generally assigned, but several. In the student's mind, the teacher must surely lecture the important things, and he cannot learn everything <u>this</u> week. He has to go to the lecture anyway, so it is logical to use it as the main instructional device.

Without experience, it is difficult to perceive the benefits of self-instruction. It ensures clear and consistent presentation of content and reduces repetition unless the learner deems it needed. Instruction can be individualized. The student need not study objectives that he can answer (Knippers:1982). With experience, students learn more material at a faster pace and the student becomes responsible for his own learning (Lea:1975), a very positive characteristic to achieve.

In view of the data concerning preference for lecture and non-preference for reading, the move to a fully modularized format does not seem indicated at this time. In view of other data, however, it seems practical to introduce some modular self-instructional learning in this school. It is important that faculty understand the technique and the benefits of it, and that they are provided the time to write the modules.

It is recommended that students, also, be fully oriented to the process. The amount and method of faculty support should be carefully decided before implementation. This could be on a consultation basis or as assigned class periods for enrichment and to answer questions.

Modular units should be the only method of instruction in predetermined topics or time frames. A module to be completed while regular lecture classes are being conducted aggravate students, adding to the perceived burden, rather than helping them. Divisions could be along subject lines (units) or time (weeks, semesters).

It is recommended that the low preference for "Goal Setting-Achievement" be studied further. This is a confident class. It seems that it should be more interested in and could benefit from goal setting abilities.

Lastly, evaluative procedures should be built into the program, the modules being evaluated when used and necessary revisions made after first and second use. If possible,

modules should be stabilized except for updating after second revision to permit longer term evaluation. Faculty workload should be calculated and comparisons made to assess for changes in FTEs. After the program has been implemented, this study should be replicated with another class which is experienced in modular self-instruction and comparisons made to assess for changes in learning style preferences.

REFERENCES

Balogun, R. A. "Performance of Some Nigerian Students on a Topography of Instructional Control in a Science Subject." Paper presented at the inaugural conference of Educational Studies Association of Nigeria, Univeristy of Ibadan, Ibadan, 1976.

Bennett, C. I., "Individual Differences and How Teachers Perceive Them," The Social Studies 70 (1979) 56-61.

Bennett, N., "Learning Styles of Health Professionals Compared to Preference for Continuing Education Program Format." Doctoral Dissertation, University of Illinois at Urbana-Champaign, 1974.

Bloom, B. S., "New Views of the Learner: Implications for Instruction and Curriculum," Educational Leadership 35 (1978) 563-8+.

Canfield, A., "The Canfield-Lafferty Learning Styles Inventory: A Status Report," In Morgan, M., S. Broward, and D. Filsin (eds). Cognitive and Affective Dimensions in Health Related Education. University of Florida at Gainsville: Center for Allied Health, 1974.

_____. Learning Styles Inventory: Manual. Ann Arbor, Michigan: Humanics Media, 1980.

Carbo, M., "An Analysis of the Relationship Between the Modality Preferences of Kindergarten and Selected Reading Treatment as They Affect the Learning of a Basic Sight Word Vocabulary." Doctoral Dissertation, St. John's University, 1980.

Cavanaugh, D. P., "Student Learning Styles: A Diagnostic/Prescriptive Approach to Instruction," Phi Delta Kappan 63 (1981) 202-3.

Cawley, R. W. et al., "Cognitive Styles and the Adult Learner," Adult Education 26 (1967) 101-16.

Clark, K. M. and G. Dickinson, "Self-Directed and Other-Directed Continuing Education: A Study of Nurses' Participation," Journal of Continuing Education in Nursing 7 (4-1976) 16-24.

Cohen, R., "Conceptual Styles, Culture Conflict and Non-Verbal Tests of Intelligence," American Anthropologist 71 (1969) 828-56.

Cooper, S., "Self-Directed Learning Projects," Topics in Clinical Nursing 4 (1982) 29-40.

Davidman, L., "Learning Style: The Myth, The Panacea, The Wisdom," Phi Delta Kappan 62 (1981) 641-5.

DelBuono, D. J., "Verifying the Nurses' Knowledge of Pharmacology," Nursing Outlook 20 (1972) 463.

Dembart, L., "Why Mary Can't Add: Women Want Answer," Philadelphia Inquirer January 10, 1982, p. 5-G.

Dexter, P. and M. Applegate., "How to Solve a Math Problem," Journal of Nursing Education 19 (Feb., 1980) 49-53.

Douglass, C., "Making Biology Easier to Understand," American Biology Teacher 41 (1979) 277-9.

Dunn, R. and K. Dunn, "How to Diagnose Learning Styles," Instructor 87 (1977) 123-4+.

_____. Teaching Students Through Their Individual Learning Styles: A Practical Approach. Reston, Va.: Reston Publishing Co., 1978.

Dunn, R., K. Dunn and G. Price., "Diagnosing Learning Styles: A Prescription of Avoiding Malpractice Suits," Phi Delta Kappan 58 (1977) 418-20.

Educational Testing Service, "National Report on College-Bound Seniors, 1981," College Entrance Examination Board, 1981.

Fernald, P. S. and D. H. DuNann, "Effects of Individualized Instruction Upon Low and High-Achieving Students, Study Behavior and Student's Evaluation of Mastery," The Journal of Experimental Education 43 (1975) 27-34.

Friedman, C. and F. Stritter. An Empirical Inventory Comparing Instructional Preferences of Medical and Other Professional Students. Proceedings of the Annual Conference on Research in Medical Education, AAMC. Washington, D. C., 1977.

Guimei, M. D., "Effectiveness of a Programmed Instruction," Nursing Research 15 (1977) 452-5.

Hardy, C. A., "Teacher Education and Personal Learning Style," Phi Delta Kappan 62 (1981) 603.

Hart, L., "Teaching Metrology by Programmed Instruction," Nursing Research 15 (1966) 20-22.

Henshel, R. L., "Effects of Disciplinary Prestige on Predictive Accuracy," Futures, April, 1975.

Hill, J. and D. Nunney. Personalizing Educational Programs Utilizing Cognitive Style Mapping. Bloomfield Hills, Michigan: Oakland Community College, 1974.

Huckabay, L., "The Effects of Modularized Instruction and Traditional Teaching Techniques on Cognitive Learning and Affective Behaviors of Student Nurses," Advances in Nursing Science 3 (April, 1981) 67-83.

Hurst, J. B., "Competency-Based Modules and Inquiry Teaching," The Journal of Experimental Education 43 (1974) 35-39.

Kagan, J. et al., "Information Processing in the Child. Significance of Analytic and Reflective Attitudes," Psychological Monograph, General and Applied, 1964.

_____, "Psychological Significance of Styles of Conceptualization," The Society for Research in Child Development. Basic Cognitive Processes in Children Monograph Series, 1963.

Kitson, D. L., "Learning Styles or Learning Deficit?" Academic Therapy 17 (1982) 317-22.

Keyser, J. S., "Cognitive Style Mapping at Mt. Hood Community College," Community College Review 8 (Winter, 1980-81) 19-23.

Knippers, A. A. and J. Urick, "The Design and Use of Self-Instructional Materials," Topics in Clinical Nursing 4 (Oct., 1982) 8-19.

Knowles, Malcolm. The Adult Learner: A Neglected Species. Houston: Gulf, 1973.

Kolb, D. Learning Style Inventory: Technical Manual. Boston, Mass.: McBer and Co., 1976.

_____. "On Management and the Learning Process." In Kolb, D., Ed. Organizational Psychology: A Book of Readings. 2nd ed. Englewood Cliffs, N. J.: Prentice-Hall, 1974.

Lea, J. Terminology and Communication Skills in the Health Sciences. Englewood Cliffs, N.J. : Prentice-Hall, 1975.

McIntire, S. J. and C. L. McIntire, "Career Counseling Model Based on Cognitive Style" Journal of Education for Librarianship 20 (1980) 198-210.

Moran, V., "Study of Comparison of Independent Learning Activities Versus Attendance at Staff Development by Staff Nurses," Journal of Continuing Education in Nursing 8 (3-1977) 14-21.

Pearman, E. and L. Suleiman, "Reflections on a Decade of Teaching Machines," Teachers College Record 65 (1966) 168-177.

Price, G. E. and others, "Reading Achievement and Learning Style Characteristics," The Clearing House, 54 (1981) 223-6.

Ptaszynski, E. M. and S. M. Silver, "Experience in Posology," Journal of Nursing Education 20 (October, 1981) 41-6.

Reichman, S. and A. Grasha, "A Rational Approach to Developing and Assessing the Construct Validity of a Student Learning Style Scales Instrument," Journal of Psychology 87 (1974) 213-23.

Reinert, H., "One Picture Is Worth A Thousand Words? Not Necessarily!" The Modern Language Journal 60 (1976) 162-8.

Rezler, A. and R. French, "Personality Types and Learning Preferences of Students in Six Allied Health Professions," Journal of Allied Health 4 (1975) 20-26.

Rezler, A. and V. Rezmovic, "The Learning Preference Inventory," Journal of Allied Health 10 (Feb., 1981) 28-34.

Smith, R. M. and K. K. Haverkamp, "Toward A Theory of Learning How to Learn," Adult Education 28 (1977) 3-21.

Sperry, L. Learning, Preference and Individual Differences: Essays and Readings. Glenview, Illinois: Scott, Foresman and Co., 1972.

Stott, D. The Hard to Teach Child. Baltimore: University Park Press, 1978.

Tamir, P. and S. Cohen, "Factors That Correlate with Cognitive Preference of Medical School Teachers,"

Journal of Educational Research 74 (November/December, 1980) 69-74.

Timpke, J. and C. P. Janney, "Teaching Drug Dosages by Computer," Nursing Outlook 29 (1981) 376-7.

Trautman, P. "An Investigation of the Relationship Between Selected Instrumental Techniques and Identified Cognitive Style." Doctoral Dissertation, St. John's University, 1979.